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EDITORIAL

PCW is acutely aware of the need for consumer protection in the microcomputer business. We try to advise and guide prospective buyers, often through the 'Interrupt' feature. Now we are delighted to report that the suppliers themselves have decided that the time has come for more positive action. To this end a Computer Retailers Association has been formed. At the time of going to press, 41 retailers have agreed to join the association and to abide by its strict code of conduct. This

code is designed to protect the consumer and we think that it is in every readers interest to study the draft. In order that you may do this we publish it in full as part of the article 'Straight Dealing' on page 42 of this issue of PCW. Should you have any comments to make then write to PCW, marking your envelope CRA. As the code is still in draft form, this is your opportunity to influence the final product. PCW will pass all correspondence on this matter to the executive committee of the CRA.

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YOUNG COMPUTER WORLD — is returning next month.

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TEST SUITE
Personal Computer World thanks Sharp UK Ltd., for their kind donation of a model MZ-80K.

EDITORIAL

The check's in the post!

Blunders lives! Well, none of us can be perfect in an imperfect world... perhaps it's all part of the fun. But, that said, the staff of PCW actually does spend a great deal of time checking — even triple checking — contributions, be they letters, programs or features.

As the magazine grows in maturity — and complexity — so, inevitably, it's a system that occasionally fails. In order to minimise these failures, PCW now intends to establish a team of referees

willing to validate contributions; a fee will be paid according to the amount of effort involved in checking each particular work.

If you feel you might be able to help in some way, drop us a line, marking the envelope "referee". And please don't automatically accept that "there must be others better than me". In this particular game, accuracy, consistency and reliability are just as important as depth of knowledge.

Should your interests lie in programs, we'll need details of your machine configuration and relevant software. If it's hardware that turns you on, then we'd welcome word on your areas of interest and experience.

All of us here feel that, once implemented, a referee system will greatly assist the continued evolution of Personal Computer World as Europe's premier journal of microcomputing. Volunteers... one step forward please!

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EDITORIAL

First the good news, and then — the good news! PCW is not normally a magazine to toot its own trumpet, but then this month has been the occasion of two quite significant events.

Almost immediately after the present editorial team took over (with the September 1979 edition) a distinctly unhealthy downward circulation trend was first stabilised, then reversed; since that time our level of readership has been steadily rising — that is, until last month. Word arrived from our distributor that he would like us to increase the number of copies printed by nearly 70% — immediately! — a move almost unprecedented in the annals of specialist

magazine publishing.

Our second glad tidings came from all the way "down under". In line with our policy of taking over the world, the happy news is that May this year saw the first-ever publishing of *Australian PCW*. The editor is one Sean Howard and the contents, a pot pourri of past PCWs and Aussie news.

Two more votes of thanks. First of all the response to our requests for programs has resulted in literally hundreds of submissions — indeed we are now in the process of planning a special software supplement for, hopefully, the August issue. Keep them coming, but please bear in mind before putting

finger to keyboard that we are looking for well written, useful/entertaining and, above all, original programs. Some much more specific guidelines will be appearing shortly.

Lastly, a flood of mail answered our plea for referees (April PCW); at the last count the figure stood at well over 100 — and it was still rising. Apart from the obvious benefits their presence will give the magazine, it's been most encouraging to have had such a high level of response from our readers. Thank you, we appreciate it.

The Editors

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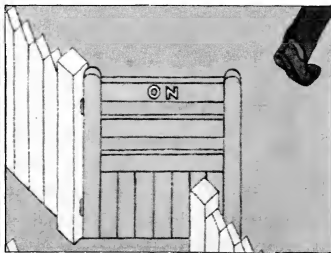
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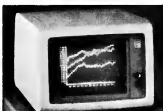
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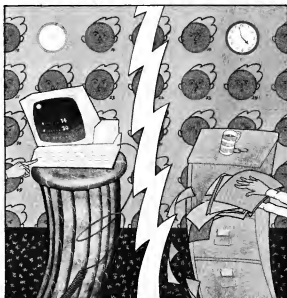
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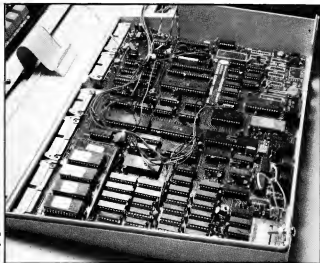
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The gossip column which pillories and vilifies harmless members of the microcomputing profession (they appear to like it).

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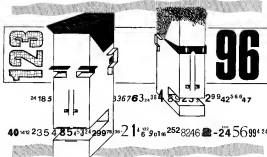
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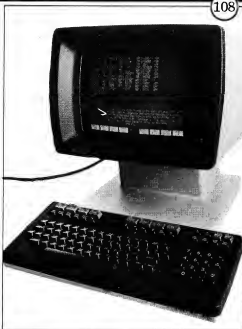
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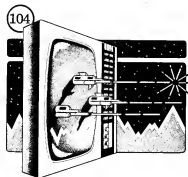
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Founder Angelo Zgorlec; Managing Editor Dick Pountain; Editor Peter Rodwell; Programs Editor Maggie Burton; Consultant Editor David Tebbutt; Sub Editor Steve Mann; Art Director Paul Carpenter; Art Editor Phoebe Creswell-Evans; Art Assistant Nicky Reehal; Art Production Sava Kantretzi; Typesetting Jane Hannell, Patrick Dineen; Advertisement Director Stephen England; Advertisement Manager Patrick Dolan; Assistant Advertisement Manager Claire Fullerton; Publicity/Press Relations Penny Flood; Production Manager Stephen Rowe; Advertisement Production Vic Lime, Anna Williamson; Advertisement Design Kate Goode, Rick Gadsby.



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All the micro computing news that's fit to print plus some that isn't; brought to you by Guy Kewney.

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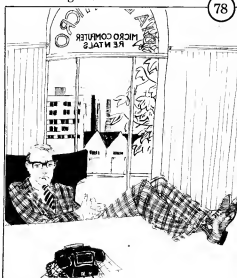
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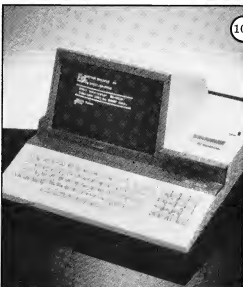
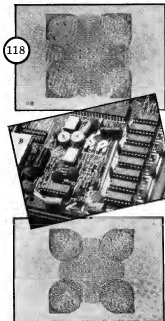
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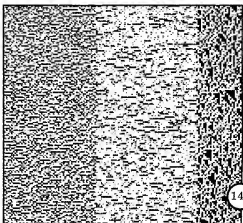


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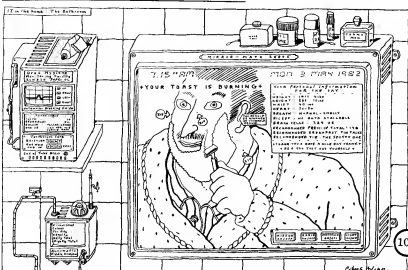
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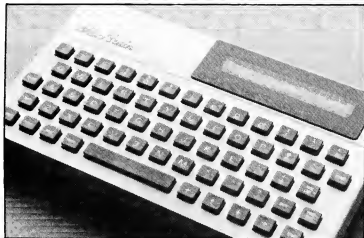
More vicious, unfounded lies and gossip, among other snippets of morally rewarding information.

Subscriptions Manager Pam Harbord; Subscriptions rates UK: £11.50, Overseas: £20.00; Address 14 Rathbone Place, London W1P 1DE. Published by Sportscene Publishers (PCW) Ltd, 14 Rathbone Place, London W1P 1DE, England. Tel: 01-631 1433, (10am - 6pm); Telex: 8954139 BUNCH G London. Personal Computer World is published by Sportscene Publishers (PCW) Ltd, 14 Rathbone Place, London W1P 1DE. No material may be reproduced in whole or part without written consent from the copyright holders; Printed Chase Web Offset, St Austell, Cornwall. Distributed by Seymour Press, 334 Brixton Road, London SW9. Tel: 01-735 4444.

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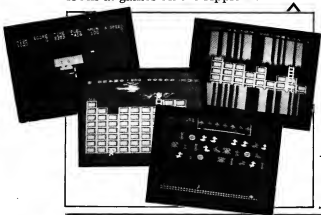


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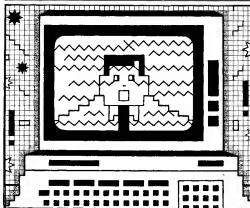
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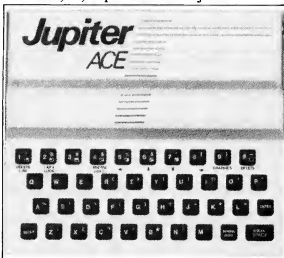
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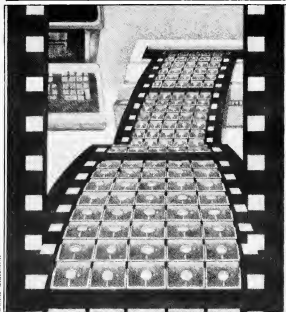
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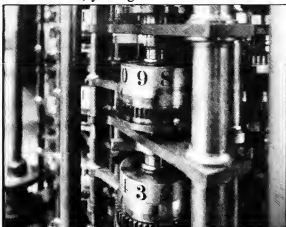
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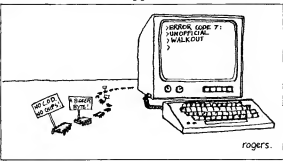
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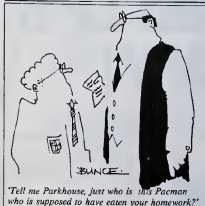
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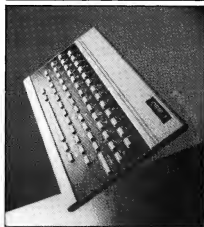
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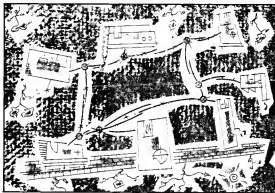
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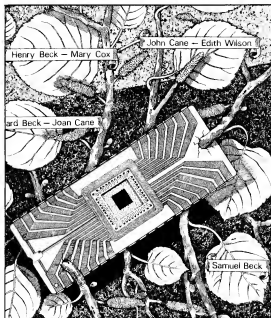
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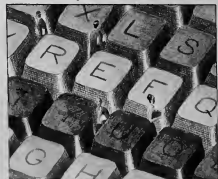
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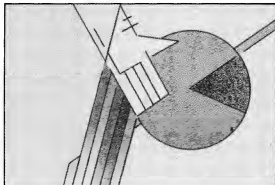
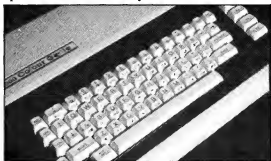
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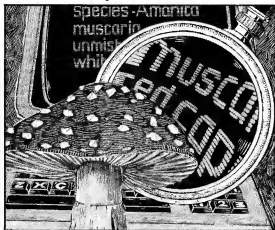
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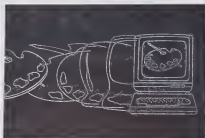
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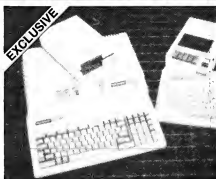
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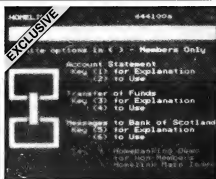
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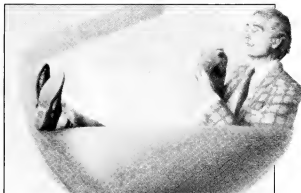
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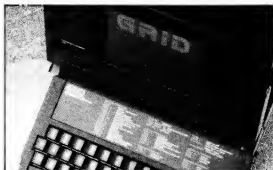
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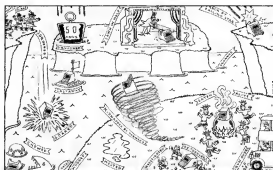
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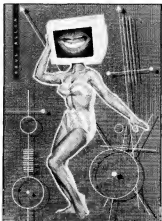
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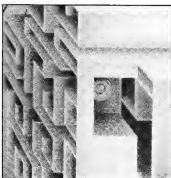
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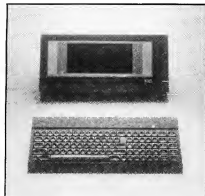
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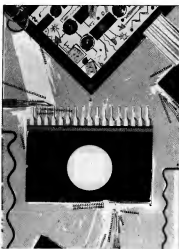
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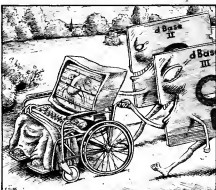
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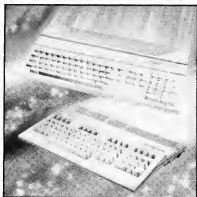
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YANKEE DOODLES

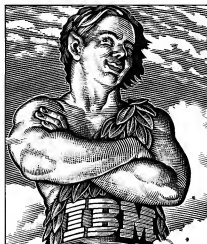
David Ahl goes backstage for a behind-the-scenes look at America.

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Guaranteed deliveries of your favourite magazine.

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SCREENPLAY

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COMPUTER ANSWERS

He's started, so he'll finish — Simon Goodwin is the master with the answers.

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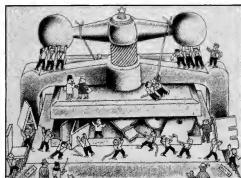
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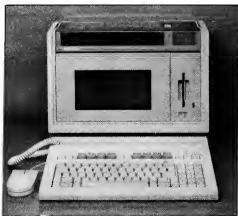
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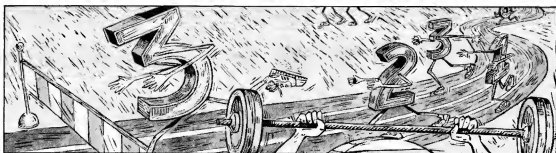
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VNU House
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London W1A 2HG

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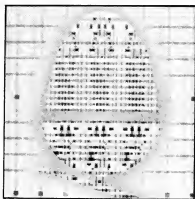
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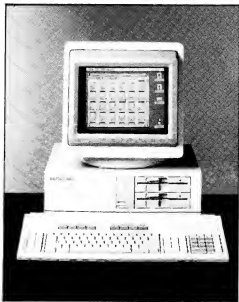
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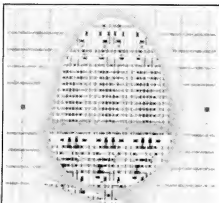
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PCW Subscription Enquiries Stuart Cruickshank Subscription Rates UK: £15, Overseas £40 Subscription and back issues address 32-34 Broadwick Street, London W1A 2HG, tel: 01-439 4242 Advertising address 32-34 Broadwick Street, London W1A 2HG, tel: 01-439 4242. All departments Telex: 23918 VNUJG — No material may be reproduced in whole or in part without written consent from the copyright holders © Computing Publications Ltd 1985. Typeset by Meadow Graphics, 196 Victoria Road, Romford, Essex. Printed by Chase Web Offset, St Austell, Cornwall. Distributed by Comag Ltd., Tavistock Road, West Drayton, Middlesex, tel: (0895) 444055

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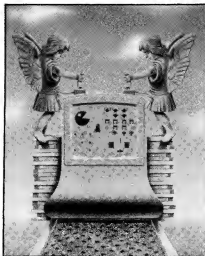
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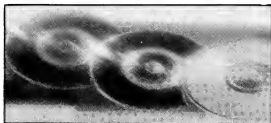
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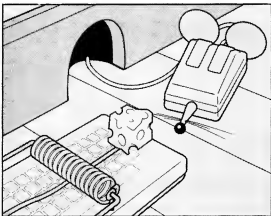
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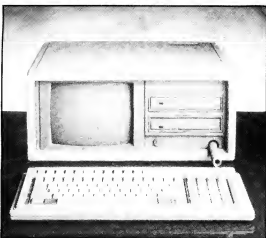
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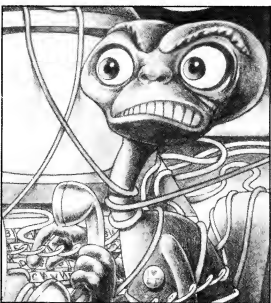
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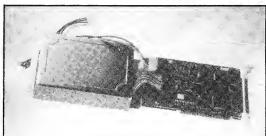
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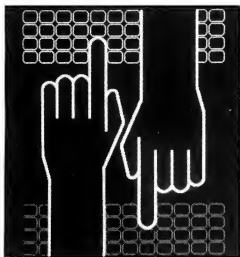
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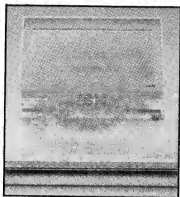


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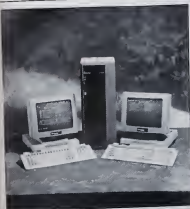
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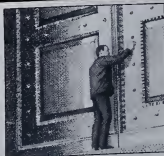
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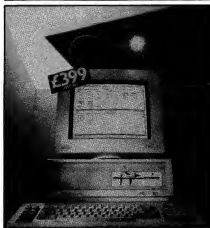
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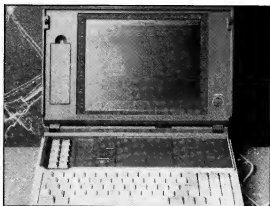
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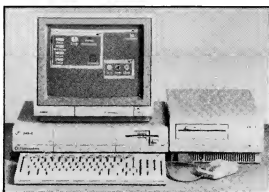
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PCW Subscription Enquiries: Stuart Cruickshank. Subscription Rates: UK £15, Overseas £33. Subscription and back issues address: 32-34 Broadwick Street, London W1A 2HG, tel: (01) 439 4342. Advertising address: 32-34 Broadwick Street, London W1A 2HG, tel: (01) 927 3018. Editorial address: 32-34 Broadwick Street, London W1A 2HG, tel: (01) 439 4242. All departments Telex: 23918 VNUG. No material may be reproduced in whole or in part without written consent from the copyright holders © VNU Business Publications by 1986. Typeset by Phase Communications, Pioneer House, 44-48 Cokerwell Road, London EC1. Printed by Chase Web Offset, St Austell, Cornwall. Distributed by Comag Ltd, Tavistock Road, West Drayton, Middlesex, tel: (0895) 444055.

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APPLE IIGS

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COMPAQ DESKPRO 386

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Heidi the chimp supplied by Intellectual Animals

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CAMBRIDGE COMPUTER Z88 96

It weighs two pounds, has an 80-column display, 32k of RAM and runs for 20 hours on standard batteries. But will the enticing specification of Sir Clive Sinclair's new business lapheld get him on the road again? Guy Kewney casts a critical eye over the machine.

BRICKLIN'S DEMO 102

Imagine being able to design the appearance of a program without needing to know anything about how to write it. Demo allows you to prototype a program or create rolling demos of existing ones. David Tebbutt gives it a test drive.

ZENITH Z-181 VS IBM PC CONVERTIBLE 112

The performance of Zenith's Z-181 lapheld makes Peter Jackson wonder what chance IBM has with its Convertible. A comparative Benchtest that shows how far portable technology has advanced.



PC LINSKAN 128

To date, scanners have been an expensive but necessary way of importing graphics into computers. Robert Schifreen looks at an alternative which clips onto an existing plotter and digitises images into Gem on the Amstrad PC.

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Want to make a better impact with your printouts? Robert Schifreen looks at four of the most interesting higher-quality printers and checks out their print quality and speeds.

PROTEXT 146

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TAKE 5 & BOOKWORKER 150

Many new users of low-cost PCs will have bought them to run their company accounts. David Woolls looks at two similarly priced but very different budget-priced integrated systems.



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What makes this user-friendly front end tick? Nick Walker peers under the hood and reveals how you can make it work for you.

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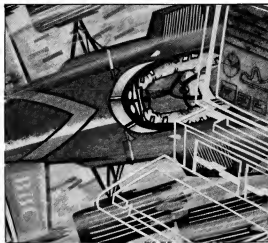
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Look carefully around the pits of a Formula 1 Grand Prix team and you'll probably see engineers with lapheld computers, desktop machines in the vans and even micros strapped to the cars. Darrell Dixon describes how even home computers are helping to give racing drivers that extra competitive edge.

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With the current boom in desktop publishing, standardising the way computers talk to printers is becoming increasingly important. Kathy and Terry Lang discuss the advantages and workings of a standard page description language.



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A BBC program that recreates life in one dimension.

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Indulge in mental gymnastics, look for a bargain computer and find out what's happening among the computer clubs.

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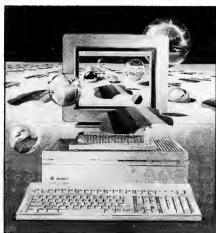
Where to find the people who've got what you want.

CHIP CHAT

Who offered to sell us a computer rather than let us review it? And which church is turning people on to PCs rather than God?

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Cover illustration by Tony Lodge
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BENCHTESTS & REVIEWS

MAC II & MAC SE

At last Apple has released its first open-architecture Macs. Robin Webster lifts off their covers to reveal machines with expandability and colour, too. Co-processors, graphics boards and extra memory will now turn the Mac into whatever kind of machine you want.

AMIGA 2000

For people who want the graphics and sound capabilities of an Amiga while retaining the safety of PC compatibility, Commodore now has the answer. Julian Rosen and Nick Walker explain how you can now have the best of both worlds.



HUSKY HAWK

Husky's latest handful is a small lapheld for people who want to run big CP/M programs. Nick Walker sizes up the potential specialist

- 96 markets for a machine with expandability, portability and rugged ancestors serving the military.

GEOS UTILITIES

Berkeley Software has delivered a fresh set of packages to give Commodore's 64 a friendly icons & windowing environment. Tony Hetherington puts Writer's Workshop, Fontpack 1, geoDex and the new Geos desktop through their paces.

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ORATOR

Dick Pountain gets hooked on Lion Systems' PC card that combines the functions of a 2400-baud modem, a telephone-answering machine and a background communications manager, yet costs no more than a modem. If you ever wanted a private voice and data bank, this could be for you.

LOTUS MANUSCRIPT

More than a word processor but less than a desktop publishing package. Robert Schifreen tests the capabilities of a package aimed at those with long or technical documents who want to be able to preview what they've done onscreen before they hit the Print button.

CRYSTAL & VP-EXPERT

Owen Linderholm went looking for a real expert system but found two products that went half-way instead. In the process he managed to teach them how to make a fair showing at bidding contract bridge.

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READER SURVEY 1987

Tell us what you think of *PCW* and win one of six valuable prizes.

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LARGER THAN LIFE

In need of some practice before you feel ready to run your own business? Marcus Jeffery explores the world of business simulations on microcomputers where you can play at being a tycoon without risking a penny of your own money. And for those with real ambition, he even found opportunities for you to run the country's economy.

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CLOCK THIS!

What kind of memory doesn't forget when you switch off your AT-compatible? Robert Schifreen explains what CMOS RAM does and how you can turn it to your own advantage by using parts of the clock chip that other programs don't reach.

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BALANCING THE SCALES

In the third part of *PCW*'s guide to easy Prolog programming, Mike Liardet shows you how to find an errant billiard ball with the minimum number of weighings.

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REGULARS

NEWSPRINT

When will Borland deliver its Basic and C compilers and its chameleon-like word processor, Sprint? Has Apricot got it right at last with its 386 machine? Will Research Machines break into the big business with its new 286 and 386 machines? Plus a batch of new products to make your computing more comfortable.

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WEST COAST CONNECTION

Tim Bajarin looks at the progress of low-cost PCs, the shrinking size of computer hardware, and a micro magazine on disk.

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PC-Write fans stand up for their word processor and *PCW*'s intervention gets a reader his computer parts.

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BANKS' STATEMENT

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A collection of machine code methods selected by David Barrow.

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SCREENPLAY

Stephen Applebaum dons deerstalker and pipe and plays 221b Baker Street, as well as Portal and Dragon's Lair Part Two.

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PCW's very own version of Exchange & Mart, plus club news and numeric novelties.

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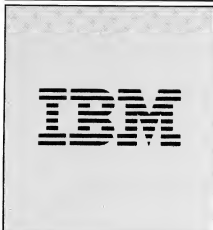
If you're buying, here's where to find those selling.

CHIPCHAT

Another month when you'd think this was the comedy rather than the computer business we were in.

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BENCHTESTS & REVIEWS

RM NIMBUS VX386

Research Machines' new Intel 386 machine is powerful, well-designed and British built. Owen Linderholm gives it the full Benchtest treatment and speculates on a future operating system that will unleash its full potential.



COMPAQ PORTABLE III

The combination of fast processor and fast hard disk make this portable AT compatible quicker than the majority of desktop computers. Nick Walker takes a look at the smallest Compaq yet for the power user on the move.

IBM PCs FOR THE NINETIES

IBM's new 8086 and 80286 PCs are the most significant announcements to come from Big Blue since the original PC. Nick Walker and Derek Cohen try to comprehend the consequences.

96 MIGENT MODEM

Take the lid off most modems and you'll wonder why the box has to be so big. Now Migent has broken the mould with a low-cost, pocket-size, battery powered, Hayes-compatible modem. Derek Cohen tests it out.

TURBO BASIC

A compiled Basic from Borland is bound to be good news, but this is one product that has a similarly priced competitor from Microsoft. Robert Schifreen compares the two in this battle of the Basics.

MICROTEXT ADAPTOR

Teletext televisions and adaptors have always been expensive, but by using a computer to generate the display, a lot of the expense can be cut. Tony Hetherington transforms his Commodore 64 and video recorder into a teletext receiver.

IN CONTROL!

Project management has so far been too expensive to appeal to users of the current swell of budget-priced software. David Tebbutt examines the first IBM PC package to break this tradition — In Control! from Abtex.

MICROSOFT WORD 3.0

Microsoft has recently transferred the immensely powerful Word 3.0 word processor from the IBM to the Apple Macintosh. Mick O'Neil discovers that it's both easy to use and packed with facilities.

SILK

Mike Liardet takes an in-depth look at a spreadsheet that is aimed squarely at existing or potential Lotus 1-2-3 users.

Founder Angelo Zgoralec Editor Derek Cohen Deputy Editor Nick Walker Production Editor Ginny Conran Deputy Production Editor Laureine Danker Staff Writers Owen Linderholm, Robert Schifreen Editorial Secretary Debbie Wallace Consultant Editors David Tebbutt, Dick Pountain Art Director Maryn J Rowbotham Art Assistant Soo Abram Sales Director John Cade Publishing Director Mike Agate Group Advertisement Manager Jan Pitt Advertisement Manager Moira Thomson Assistant Advertisement Manager Gary Lucas Sales Executives Julie Carter, Janet Harrison, Anne-Marie Halton, Tim Conniff, Stephen Babb Advertisement Assistant Val Young Production Manager Cecile Passmore Production Assistant Luke Jessup

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CAUGHT IN THE NET

What's the difference between multi-user machines and networks? Peter Malcolm gives a detailed explanation of the benefits and pitfalls of both approaches.

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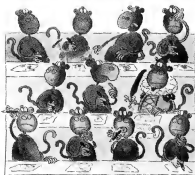
Jonathan Green speculates on the evolution of writing-style analysis programs and concludes that, at least for a professional dictionary compiler, they have some way to go.

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NEW TUNE, OLD FIDDLE

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BRANCHING OUT

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Locomotive Software tells us what's wrong with our Protex review.

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COMPUTER ANSWERS

Your queries and questions answered by Simon Goodwin.

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MAILBOX

Peter Tootill persuades you of the advantages of bulletin boards, and gives details of BBS software.

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SUBSET

David Barrow's latest machine code cornucopia features a comprehensive Z80 disassembler.

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PROGRAM FILE

Owen Linderholm describes the rudiments and effects of hashing, and Amstrad CPC owners can add inline assembler routines to their Basic programs with Stephen Devine's Program of the Month.

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END ZONE

Chess, mathematics and much, much more.

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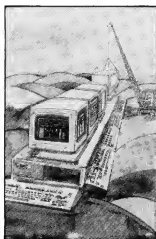
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Who sells what in PCW, and where to find it.

CHIPCHAT

PCW's tongue-in-cheek look at the industry.



BANKS' STATEMENT

While IBM is developing its PC to give the power of a mini, Digital Equipment is busy encompassing the power of a Vax in a micro. Martin Banks speculates on this newly emerging IBM rival.

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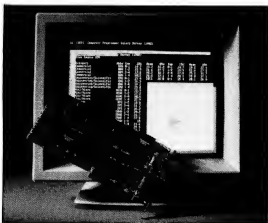
BENCHTESTS & REVIEWS

TANDON PAC286

Tandon's new AT clone is designed so that you can carry your desktop computer with you wherever you go. No — it's not another laptop, but a machine with cheap, removable hard disks. Guy Kewney Benchtests this innovatory new machine.

IBM MODEL 30

The baby of the new IBM Personal System range is well-built, very fast, offers excellent graphics and uses 3½in floppy disks — an impressive PC replacement at an inflated IBM price. Nick Walker and Derek Cohen take a closer look.



HERCULES INCOLOR CARD

How would you like 256 colours, fast graphics, and colour 'Hercules' graphics using your existing EGA monitor? 'Go-it-alone' video card manufacturer Hercules has done it again with its excellent new InColor card. Dick Pountain liked it so much, he bought the review model.

96 BLUE CHIP PC

Amstrad's recent launch into the US made very little impact on the already well-established cheap-clone market. Now Blue Chip, America's most successful clone manufacturer, is heading for the UK. Peter Jackson assesses the impact of this quality 'Amstrad basher'.

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DELUXE PAINT II

Deluxe Paint for the Commodore Amiga was widely regarded as the best painting package for any micro, but Deluxe Paint II adds a great deal more to an already impressive specification. Stephen Applebaum was overwhelmed by its features.

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READY, SET, GO! 3

After taking a battering from Aldus' Pagemaker, Ready, Set Go! has reappeared to fight again, with the considerably enhanced version 3. John Donaldson fires up his Macintosh and finds it a worthy competitor.

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NORTON UTILITIES

The latest version of Norton Utilities offers even more insurance for those prone to deleting files, directories and even formatted disks. Robert Schifreen discovers one alarming feature of this otherwise indispensable package.

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FIRST WORD PLUS

Roger Howorth takes a look at First Word Plus, the first word processor to successfully make the transition from Atari ST GEM to Amstrad PC GEM. After using both versions, he finds it one of the few programs that wouldn't look out of place on an Apple Macintosh.

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COLOUR BY NUMBERS

While most micro owners have a colour display, very few have any form of coloured output despite the advent of painting packages and colour desktop publishing. Robert Schifreen describes the technology behind colour printers and looks forward to the day we can all afford one.

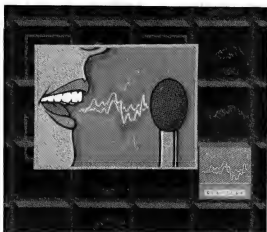
WORKING TO RULE

You don't need to buy a special package to implement an expert system. Jack Weber shows how a more powerful spreadsheet can be used to create a rule-inducing expert system.

LOUD AND CLEAR

Soon we'll be able to talk to our computers and have them talk back to us. Nick Hampshire explains the techniques and reels in horror at the computing power needed.

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A KIND OF MAGIC

A KIND OF MAGIC
Mike James presents a collection of algorithms that defy intuitive thinking but will, nevertheless, improve the performance of your programs.

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REGULARS

NEWSPRINT

Guy Kewney uncovers a Transputer-based machine from Atari, the remains of Bristol Micro Traders, law-suits from Lotus, and more besides.

WEST COAST CONNECTION

The race to produce Personal System clones, and the promising future for Microsoft Windows, are among the news from Tim Bajarin.

LETTERS

Expert systems come under scrutiny this month.



BANKS' STATEMENT

Martin Banks questions the motives of those designing computer-based systems for the disabled, and ponders the future of such products.

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COMPUTER ANSWERS

OUR EXPERTS ANSWERS
Our experts puzzle over foreign-character generation on a PC, Atari printer problems, and stubborn sub-directories.

SCREENPLAY

Home computers lose out once again to more serious machines in Stephen Applebaum's hand-picked selection of the best games.

BIBLIOFILE

A critical look at IBM, and a collection of networking books, are reviewed this month.

MAILBOX

Peter Tootill examines the techniques and pitfalls of using bulletin boards as a cheap source of public domain software.

SUBSET

String input, character rotation and problems with linkage are covered by David Barrow.

PROGRAM FILE

Binary-tree techniques lead off a collection of useful programs and utilities for the QL, the BBC, MS-DOS, the Macintosh, the Amstrad CPC and the Lynx.

END ZONE

All the regulars.

CHIPCHAT

Prize winners in our reader survey, plus further snippets from life in the PCW office.

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PCW Subscription Enquiries: Stuart Lickhann **Subscription Rates UK £15, Overseas £33** **Subscription and back issues advice:** 32.34 Broadwick Street, London W1A 2HG, tel: (01) 439 4242 **Advertising address:** 32.34 Broadwick Street, London W1A 2HG, tel: (01) 927 9816 **Editorial address:** 32.34 Broadwick Street, London W1A 2HG, tel: (01) 439 4242 **All departments:** Tel: 238161 **No material may be reproduced in whole or in part without written consent from the copyright holders © VNU Business Publications** by 1987, typeset by Phrag Communications, Pasterfield House, 44/48 Clerkenwell Road, London EC1. Printed by Chase Web Offset, St Austell, Cornwall. Distributed by Comag Ltd, Tavistock Road, West Drayton, Middlesex, tel: (0895) 444055

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Cover photography by Chris Bell
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BENCHTESTS & REVIEWS

ATARI DESKTOP PUBLISHING 96

The new Mega ST4 and laser-printer from Atari look set to drastically reduce the cost of desktop publishing. Nick Walker takes a look at the hardware while Owen Linderholm tests the two leading packages to complement this system: Fleet Street Publisher from Mirrorsoft and Publishing Partner from SoftLogik.

HP-28C CALCULATOR 108

For engineers, scientists and mathematicians, this programmable calculator puts a lot of PCs to shame. Nick Walker discovers the power behind Hewlett-Packard's new HP-28C.



DELL 286¹²

The very successful US mail-order company PC's Limited is coming to the UK. Under the name Dell Computers it will be offering high-quality PC/AT-compatibles at very competitive prices. Robert Schifreen takes delivery of the first UK model.

INTEL INBOARD 386/AT 120

Can't wait for the price of 386 machines to drop? There's an alternative — plug an expansion card into your existing machine. Peter Jackson drives his PC/AT to new heights with Intel's own Inboard expansion card, with Orchid's Jet 386 also getting a quick spin.

GRAPHICWORKS 130

Computer artist Ian McKinnell uses a Macintosh every day for his work. We gave him the new improved Graphicworks from Mindscape and it soon became a part of his palette of Mac art applications.

AMX DESKTOP 140

Amstrad calls it a word processor, but as many people know the PCW 8256/8512 machines are also powerful CP/M computers. Now AMS has given the Joyces a 'Mac'-like graphical front-end complete with windows, icons and pull-down menus. Robert Schifreen was pleasantly surprised with its quality.

TURBO PROLOG TOOLBOX 150

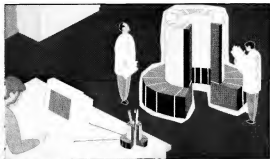
Borland's Turbo Prolog gave PC-compatibles an AI programming language at a bargain price. Mike Liardet tests the official Borland toolkit for this package which was designed to remove the drudgery out of producing professional-looking applications.

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Owen Linderholm reviews the latest version of that legendary word processor, WordStar. He finds it a desirable upgrade but doubts its ability to attract new users.

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ACORN ARCHIMEDES

Dick Pountain reviews the most exciting machine ever to come from Acorn — the Archimedes. Based on Acorn's RISC technology, the Archimedes is probably the fastest machine PCW has ever tested and yet it is compatible with the Model B and costs less than £1000.



ATARI PC

Atari's PC is the first cheap IBM-compatible that offers EGA (enhanced graphics) as standard. With Amstrad's recent announcement of an EGA version of the PC1512, the competition should be fierce. Peter Jackson takes a closer look at this diminutive PC.

PSION ORGANISER II

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GEM Desktop Publisher makes desktop publishing affordable for PC-compatible users. David Tebbutt found it very capable.

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What's Best! attaches itself to Lotus 1-2-3 and 'pops-up' whenever you have to find an optimal solution. Mike Liardet takes a look at this ingenious piece of software and its 'scenarios'.

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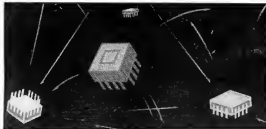
dBaseIII+ lends itself to the creation of large, complex database systems but can be painfully slow in their execution. Kathy Lang looks at how three dBaseIII+ compilers, Clipper, FoxBase and Quicksilver, address the problem.

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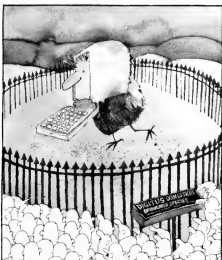
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PC LAPTOPS

It is now possible to buy a PC-compatible laptop for not much more than the cost of a desktop machine. John Donaldson Benchtests three fully-configured laptops which cost less than £1000 and offer true battery power — the Datavue Spark, the Toshiba T1000 and the Sharp PC-4501A.

AMSTRAD PC1640

Alan Sugar has upgraded the Amstrad PC — it now has enhanced graphics and 640k of RAM. Robert Schifreen looks at the improvements.



CAMBRIDGE COMPUTER Z88 108

It has taken four months to get here, but now Sir Clive Sinclair really is shipping his Z88 laptop. Robert Schifreen takes delivery of one of the first production machines, and finds it to be truly portable and very capable.

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OMNIS QUARTZ 136

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Owen Linderholm can now run multiple PC applications with true multi-tasking — and most within windows. No, he hasn't taken delivery of OS/2 or a new 386 machine — all this is possible on a standard PC with the latest version of DESQview.

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The Apple Macintosh has always been a popular choice for desktop publishing and now, with Xpress, it offers an even more professional set-up, with unprecedented typographic control-over page layout. Graham Jones considers it to be a new standard.

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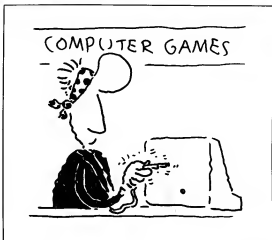
Amassing a collection of graphics primitives is a time-consuming task, but they can be an invaluable programming tool. Mark Parlour presents a detailed collection of Turbo Pascal algorithms which could lead to some impressive graphic output.

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SHOWING OFF!

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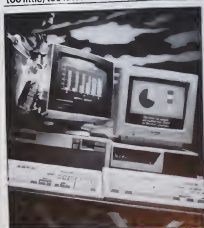


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AMSTRAD PCW 9512

Amstrad's latest model in its word-processor series gives true letter-quality print, twice the disk capacity and an almost paper-white screen. John Donaldson finds much to praise but wonders if it's a case of 'too little, too late?'



MISSION 386 & TULIP 386AT

Nick Walker examines additions to the burgeoning 386 market from two companies new to the UK computer market. Mission, highly regarded for its hi-fi, plans to bring 386 power at a knock-down price while Tulip offers a very high-quality 386 machine to compete with the more expensive boxes.

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